

Markets for fish and fishery products in Eastern Europe

by

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M-47

ISBN 92-5-101409-4

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PREPARATION OF THIS PAPER

This paper has been prepared as part of the output of the Fish Utilization and Marketing Service of FAO and it is principally intended to help fish exporters in developing countries by estimating present and potential demand for fish in the USSR, Poland, German Democratic Republic, Bulgaria and Romania. It describes arrangements for trading with these countries and provides addresses for contacts. The author is very familiar with such arrangements through personal experience.

This paper complements the studies prepared under the Project to Improve the Utilization of Small Pelagic Fish funded by the Government of Norway, through a funds-in-trust arrangement with FAO.

- Fisheries Technical Paper No. 220: The world supply and demand picture for canned small pelagic fish by B.V. Lanier, Rome 1981
- Fisheries Technical Paper No. 221: Markets for frozen small pelagic fish by E. Matton, Rome 1982
- Fisheries Technical Paper No. 233: Cured fish: market patterns and prospects, compiled by E. Moen, Rome 1983; and the market reports issued by the Project Marketing Information and Technical Advisory Services for Fish Products in the Asian/Pacific Region (INFOFISH), P.O. Box 899, Kuala Lumpur 01-02, Malaysia
- The international market for tuna
- The international market for shrimp
- The international market for cephalopods
- The world market for fish meal and the Asian/Pacific region
- The world seaweed industry and trade
- Dried fish markets in Asia
- High valued finfish markets in Hong Kong, Singapore and Tokyo.

Distribution:

FAO Fisheries Department
FAO Regional Fisheries Officers
FAO Fisheries Field Projects
HP Selector

For bibliographic purposes this document should be cited as follows:

MacSween, I.M., Markets for fish and
1983 fishery products in Eastern
Europe. FAO Fish.Tech.Pap.,
(241):23 p.

ABSTRACT

The report analyses the changes in the catch composition of the long distance fisheries of Eastern European countries following the establishment of the EEZ regime. It reviews the markets for fish and fishery products in the USSR, Poland, German Democratic Republic, Bulgaria and Romania and provides an indication of the import potential of these countries.

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1. INTRODUCTION

In the past three decades there has been a tremendous expansion in the fishing industry of Eastern Europe. In the period 1950 to 1975, the nominal catch of the Soviet Union from all fishing areas increased from 1.75 million tons to 10 million tons. There have also been very substantial increases in the fish catches taken by Bulgaria, the German Democratic Republic, Poland and Romania over the same period.

These developments have been in accordance with the centrally planned nature of the economies involved. There is no doubt that these countries regarded fish as a vital source of foodstuff for their populations to complement their agricultural production. With a combined population of just over 350 million people, there is a substantial demand for fish which has for a long time been an internal part of the diets of these countries.

There has been an attempt by these countries in the past three decades to achieve a position of self-sufficiency in fish and fish products. This was not always the case and indeed the Scottish herring industry of the late 19th and early 20th centuries was based on the herring trade with the Baltic countries. As long ago as 1825, Scotland was exporting up to 360 000 barrels per year to the port of Stettin alone. As the catch increased this trade developed and was extended into other parts of Germany, Poland and Russia. As the railway system was extended throughout Russia, an increasing proportion of Scotland's and Norway's catch of herring was sent there in a cured form. By 1913, some 80 percent of the Scottish herring catch was exported in a cured form to Germany and Russia, with the latter becoming the greater market. The cessation of this trade was one of the factors which led to the collapse of the Scottish herring fisheries post 1918.

The attempt by the East European countries to achieve self-sufficiency in fish did, however, come up against a major problem from 1976 onward. Since then there has been a worldwide movement by coastal states toward extended fisheries limits. The introduction of these limits resulted in the loss of certain fishing grounds to some countries. Attempts have been made to circumvent this problem by prosecuting fishing in other parts of the world's oceans. Whilst successful in part, the change in fishing grounds has led to a different species mix being caught. This has been one of the factors in the growth in trade in fish and fish products with these East European countries. This trade has developed along particular lines and reflects the fact that much of the fish processing capacity of these countries is located onboard factor trawlers. Trade with these countries also reflects the foreign currency limitations faced by some of them and barter arrangements are an important feature of trade and will continue to be so.

Given the centralized nature of these countries, trade is conducted usually through only one body. Details of these are given below in the review of the individual countries.

The fishing industry and the fisheries of the European socialist countries - Poland, German Democratic Republic, Bulgaria and Romania - have much in common with the industry of the Soviet Union. This is due in part to cooperation with the Soviet Union and to common fishing regions.

The fishing industry in these socialist countries has progressed and developed mainly through the creation of modern industrial fisheries which utilize large fishing vessels that generally combine fishing with processing.

2. THE IMPACT OF THE 200 MI FISHERIES LIMIT ON THE FISHERIES OF EASTERN EUROPEAN COUNTRIES

The extension of fisheries limits out to 200 mi in most parts of the world, has had a significant impact on the fishing industries around the world. This impact has taken two major forms and has affected firstly, the pattern of fishing activity and secondly, the pattern of international trade flows in fish and fish products.

The most immediate consequence of the new regime of 200 mi fisheries limit has been the redevelopment of fishing effort. The general acceptance of the concept of 200 mi fisheries limit has meant that unrestricted international access to the world's marine fish resources has been replaced largely by a system of national fisheries jurisdiction. To some extent this has brought about and will increasingly bring about a gradual shift in fishing activity from the traditional distant water fleet operations to more localized coastal operations.

In particular, the operations of the Eastern European fleet traditionally or more recently engaged in exploiting the Atlantic and Pacific waters off Canada and the United States of America have been drastically reduced. In addition, the fleets of these countries have had to stop their fishing activities in the North Sea and in the areas to the west of the United Kingdom and the Republic of Ireland out to the 200 mi limit.

The impact of being prevented from fishing in certain areas can be demonstrated by comparing the most recent catch statistics for the countries in question with the catches recorded in 1976, the year prior to the general introduction of the 200 mi fisheries limit regime.

Total catches from all marine areas for the years 1976 and 1981 are shown below:

Table 1

Nominal catches by countries: marine fishing areas (in tons)

	<u>1976</u>	<u>1981</u>
USSR	9 360 134	8 739 022
Poland	726 307	606 291
GDR	266 115	228 988
Romania	76 913	136 648
Bulgaria	159 176	93 465
Total	10 588 645	9 804 414

Source: FAO Yearbook of Fisheries Statistics 1981: Volume 52

In the period since the extension of fisheries limits, the catches of the above five countries from marine fishing areas has fallen by 8 percent. Not all of the above countries have had their catches reduced by the same amount reflecting their ability to compensate for lost opportunities in one area by expanding their operations in other areas. In the case of the Soviet Union, the reduction in the catch recorded is in the region of 7 percent whereas in the cases of Poland and the German Democratic Republic the loss in catches has been 20 percent and 16 percent respectively. The Bulgarian catch has fallen by 70 percent over the period whilst Romania actually managed to increase its catch by some 44 percent.

And, of course, the loss in catches has varied from area to area depending upon whether the adjacent coastal states have extended their jurisdiction over areas formerly fished by these countries or are prepared to allow them to continue fishing. The impact this has had on these countries in the various areas of the world is shown below.

Table 2

Nominal catches by areas (in tons)

<u>A. North West Atlantic</u>	<u>1976</u>	<u>1981</u>
USSR	852 681	113 951
Poland	125 488	9 575
GDR	67 172	4 786
Romania	6 398	-
Bulgaria	20 118	-
Total	1 071 857	128 312

Table 2 (Continued)

<u>B. North East Atlantic</u>	<u>1976</u>	<u>1981</u>
USSR	2 543 746	1 812 254
Poland	324 830	214 929
GDR	159 139	104 467
Romania	19 033	-
Bulgaria	34 613	5 925
Total	3 081 361	2 137 575
<u>C. Western Central Atlantic</u>		
USSR	23 830	-
Total	23 830	-
<u>D. Eastern Central Atlantic</u>		
USSR	1 134 433	780 597
Poland	129 412	1 632
GDR	7 461	103 904
Romania	35 804	85 567
Bulgaria	25 405	8 996
Total	1 332 515	980 696
<u>E. Mediterranean and Black Sea</u>		
USSR	369 250	335 998
Romania	7 746	9 997
Bulgaria	9 941	19 782
Total	386 937	365 777
<u>F. Southwest Atlantic</u>		
USSR	9 710	17 200
Poland	579	73 263
Total	10 289	90 463
<u>G. South East Atlantic</u>		
USSR	841 250	904 000
Poland	113 026	125 382
Romania	7 932	41 084
Bulgaria	45 744	38 310
GDR	4 907	7 552
Total	1 012 859	1 116 328
<u>H. Antarctic Atlantic</u>		
USSR	40 200	361 478
Poland	21	17 656
GDR	-	8 279
Total	40 221	387 413

Table 2 (Continued)

<u>I. Western Indian Ocean</u>	<u>1976</u>	<u>1981</u>
USSR	21 970	29 230
Total	21 970	29 230
<u>J. Antarctic Indian Ocean</u>		
USSR	17 400	149 198
Total	17 400	149 198
<u>K. Northwest Pacific</u>		
USSR	2 749 943	3 553 423
Total	2 749 943	3 553 423
<u>L. Northeast Pacific</u>		
USSR	496 704	2 589
Poland	30 714	159 942
Bulgaria	23 355	6 794
Total	550 773	169 325
<u>M. Western Central Pacific</u>		
USSR	-	3 895
Total	-	3 895
<u>N. Eastern Central Pacific</u>		
USSR	-	2 216
Total	-	2 216
<u>O. South West Pacific</u>		
USSR	78 020	62 370
Poland	-	3 912
Total	78 020	66 282
<u>P. South East Pacific</u>		
USSR	-	604 890
Bulgaria	-	13 658
Total	-	618 548
<u>Q. Antarctic Pacific</u>		
USSR	-	5 180
Total	-	5 180

It can be seen, therefore, that in the period since fisheries limits were generally extended worldwide in 1977, there has been a significant shift in the geographical pattern of fishing activities by the above nations. This has also meant that the variety of species caught has altered dramatically and this has important implications for the marketing of the catch.

These five countries have been particularly affected in the Atlantic fisheries, thereby reflecting the fact that of them, only the Soviet Union can be deemed to be a coastal state and so entitled to claim its own fisheries zone within the Atlantic proper. The German Democratic Republic and Poland are both adjacent to the Baltic and their zones of fisheries jurisdiction are confined therein.

In the North West Atlantic the catches taken by these countries has been reduced by a factor of 8 from just over 1 million tons to just over 128 000 tons, as a result of their exclusion from Canadian and United States of America waters. There has been a less severe contraction in the North East Atlantic, although the combined catch taken from these waters in 1981 was 44 percent lower than that taken in 1976.

There has been a complete cessation of fishing in the waters of the West Central Atlantic and a reduction of 36 percent in the combined catch from the East Central Atlantic.

One of the areas which has been exploited to a much greater extent since the extension of fisheries limits has been the South West Atlantic and the combined catch from that area has increased since 1976 by a factor of 9 to 90 463 t. There has also been some marginal gain in the South East Atlantic, but one of the main growth areas for these countries has been the Antarctic Atlantic. Catches from this area by the USSR, Poland and the GDR soared from 40 221 t in 1976 to 387 413 t in 1981, with Antarctic Krill accounting for 74 percent of the catch. A similar situation exists in so far as the Antarctic Indian Ocean is concerned and catches from this area by the countries above have increased from 17 400 t in 1976 to 149 198 t in 1981, with Antarctic krill accounting for virtually all of the catch.

In the North West Pacific, the extension of fisheries limits has worked to the advantage of the Soviet Union by permitting the exclusion of other nations' fishing vessels. In that region, the 1981 catch taken by the USSR at just over 3.5 million tons was some 29 percent higher than the catch recorded in 1976. The converse holds, however, in the North East Pacific where the combined catch of the USSR, Poland and Bulgaria fell by almost 70 percent between 1976 and 1981. If not for the significant increase in the Polish catch in that area and due to their participation in a joint venture arrangement with a United States partner, the result would have been even worse. The other area of major expansion by the Soviet Union in particular was the South East Pacific where in 1981, the USSR caught 604 890 t compared with none in 1976.

It can be seen, therefore, that in some regions the extension of fisheries limits has adversely affected the catches of some or all of the above countries. This has necessitated their looking for fishing grounds in either areas not under the jurisdiction of coastal states or in areas in which the coastal state is prepared to allow them to fish. This has broadly resulted in a southern movement in the fishing activity of these countries down to and including the Antarctic region.

Such a shift in the pattern of fishing activity has obvious implications for the composition of the catch given that the new areas of exploitation yield different species to the more traditional grounds. This is examined in more detail under the heading of the individual countries.

The redistribution of fishing effort is not, however, the only outcome resulting from the extension of fisheries limits to 200 mi. Most of the distant water fishing that took place in the past was undertaken by countries whose coastal resources were generally insufficient to meet their domestic market demands for fish. The recent shift in fishing activity with greater exploitation of fish stocks being undertaken by the coastal states, implies that there are enhanced opportunities for a significant growth in international trade in fish and fish products. Some of the coastal States with rich fish stocks have significantly increased their trade in fish and fish products and there is evidence that international trade flows are being realigned.

Total international trade of 158 countries is shown below:

Table 3

Total international trade of 158 countries (in t)

1976	1980
19 952 800	24 219 300

In the period 1976 to 1980 there has, therefore, been an increase of 21 percent in the international trade of 158 countries. In the corresponding period there has been a 3 percent increase in the world's catch of fish. So there is evidence that in the post 200 mi fisheries limit era, there has been a very significant increase in international trade in fish and fish products. Comparing the total international trade of the 158 countries with their total catch reveals that in 1980, trade accounted for 35 percent of the disposal of their catches, whereas in 1976 trade accounted for only 30 percent of the disposal of their catches.

The imports of the Soviet Union, Poland, the German Democratic Republic, Romania and Bulgaria since the worldwide introduction of 200 mi fisheries limit are shown below:

Table 4

Imports of main fishery commodity groups (in tons)

	1977	1978	1979	1980
USSR	50 469	79 585	109 687	181 811
Poland	169 594	223 156	235 950	235 950 (estimate)
GDR	140 072	102 007	119 631	38 631
Romania	70 700	70 700	70 700	70 700 (estimate)
Bulgaria	20 810	29 561	33 778	22 057
Total	451 645	505 009	569 746	549 149

Source: FAO Yearbook of Fishery Statistics - Volume 51

The import data shows that in the years following the introduction of extended fisheries limit there was a significant increase in the combined imports of these countries. The aggregated 1979 figure of 569 746 t was some 26 percent higher than that recorded in 1977, although there was some slight reduction in 1980.

The impact of the extension of fisheries limits on the above countries can, therefore, be summarized as follows. The implementation of coastal State jurisdiction has resulted in a significant reduction in the activities of their distant water fleets in certain parts of the world. This is particularly the case in the Northern Atlantic. To compensate for the loss in catches the fleets of these countries have moved to other areas, but in the process of doing so they have altered the composition of their catches away from the traditional species for which there was a ready demand in their markets to other varieties and in particular Antarctic krill and various pelagic species for which demand in their domestic markets is limited. By exploiting these waters which are more distant from their home ports, they will also have significantly increased their production costs.

At the same time there has been a growth in the imports of fish and fish products into these countries. But it is not yet the case that the reduction in the catches of these countries have been fully offset by increases in the volume of their imports. Despite significant reductions in the catches of demersal fish by the fleets of the Soviet Union and other East European countries, there has as yet been no corresponding increase in the imports of such species. But the potential for a significant growth in the level of imports of fish and fish products to these countries does exist.

3. COUNTRY REVIEWS

USSR

The fishing industry of the Soviet Union is charged with fulfilling several functions. These include the provision of fish and fish products for domestic consumers; the provision of fishmeal for the agricultural sector; and the provision of fish and fish products for export to other countries to ensure an equilibrium in the balance of trade.

In the period since 1950, there has been a very rapid expansion in the Soviet fishing industry and the growth in catches is shown below:

Table 5

Landings of fish and fish products in the USSR
(million metric tons)

1950	1 755	1966	6 093
1951	2 142	1967	6 538
1952	2 107	1968	6 784
1953	2 195	1969	7 082
1954	2 505	1970	7 828
1955	2 737	1971	7 785
1956	2 049	1972	8 209
1957	2 761	1973	8 614
1958	2 936	1974	9 255
1959	3 075	1975	9 969
1960	3 541	1976	10 132
1961	3 724	1977	9 351
1962	4 167	1978	8 915
1963	4 670	1979	9 049
1964	5 171	1980	9 476
1965	5 774	1981	9 546

Sources: Pronyshleumost USSR - Statistika
FAO Yearbook of Fisheries Statistics 1981 - Volume 52

In the period since 1950, the Soviet catch has increased by almost 5.5 times to stand at just over 9.5 million tons in 1981, compared with almost 1.8 million tons in 1950. The average annual increase in the catch in this period has been almost 345 000 t. The recorded increase in the catch has been achieved by the Soviet fishing fleet expanding its operations on the high seas away from the domestic coastal zone. But the period since 1950 has not been one of uninterrupted or continuous growth in catches. The Soviet catch reached a peak in 1976, the year prior to the worldwide extension of fisheries limits. The expansion in the Soviet catch being achieved as it was from the high seas contracted in 1977 due to the exclusion of Soviet vessels from certain fishing grounds. In 1950, only 57 percent of the Soviet catch was taken from the high seas with the remaining 43 percent being taken from inland waters. By 1976, the high seas were accounting for over 88 percent of the Soviet catch with inland waters accounting for less than 12 percent of the total catch.

The extension of coastal State jurisdiction is one of the factors which resulted in the nonfulfillment of the 1975-80 plan of production which is shown below,

Table 6

Planned production of fish and fish products
(million tons)

1976	10 514
1977	10 671
1978	10 828
1979	10 985
1980	11 142

Source: Narodnoe Khoziaistvo zabo let Statistika: Moscow

Faced with a situation in which other coastal States were extending their fisheries jurisdiction, the Soviet Union declared her own 200 mi fisheries limit in December 1976. Since then, the Soviet Union has responded to the new regime of extended limits by continuing to devote the maximum effort to fishery operations outwith the zones of coastal jurisdiction. Increasingly the fleet has been adapted to exploit the fish resources in the open and deeper parts of the oceans. In addition the Soviet Union has sought to protect its fishing operations by entering into agreements to fish in the coastal zone of other countries. By negotiating the bilateral and multilateral agreements, the Soviet Union has sought to secure continued access to certain fishing grounds. At the present time the Soviet Union has officially entered into no less than 66 bilateral agreements with 39 countries and further multilateral agreements. In addition to such agreements, the Soviet Union has also entered into a number of joint venture agreements whereby Soviet vessels have either been permitted to fish in the coastal zones of other countries, or have been used as floating processing units for the catches taken by domestic fishing vessels within their own coastal zones.

But it is, of course, true that the Soviet Union has responded in other ways to the worldwide movement toward 200 mi coastal zone. By precluding the vessels of other nations from entering the Soviet 200 mi zone, the Soviet Union has attempted to improve its own production in its own coastal zone. At the same time there has been an effort to increase the catch from inland seas and freshwater sources by a programme of restocking these areas.

In the current Five Year Plan for Economic Development for the period up to 1990, the emphasis has been placed upon the better utilization of catches. No mention is made as in the past of achieving higher nominal catches. Through the more efficient utilization of the existing catch it is hoped to achieve a 10 to 12 percent increase in the output of edible fish. This will, in effect, require the Soviet Union to direct 75 percent of its fish catch to human consumption food production compared with an achieved figure of 72 percent in 1980 and 66 percent in 1975.

It is planned that in the process of achieving the intended levels of production that the high seas beyond coastal State jurisdiction will provide 35 - 37 percent of the Soviet Union's production of fish and fish products. Some 16 percent will be taken from the coastal zones of other countries with whom the Soviet Union has entered into agreement; the coastal zone of the Soviet Union will produce a further 33 percent; and the inland seas of the Soviet Union plus fresh water sources will account for the balance of around 15 percent.

It is clear, therefore, that operations from distant water grounds either within or without the coastal zones of other countries will remain the mainstay of the Soviet fishing industry for the coming decade or so.

In its process of development, as the Soviet fishing fleet and catch from distant water grounds grew, it became increasingly necessary to process catches at sea onboard processing vessels and to transfer the resultant output to transport vessels. As a matter of policy the entire catch of the high sea fisheries is to be processed aboard Soviet factory ships.

At the present time the processing vessels of the Soviet Union can be divided into three main categories:

- (a) fishing processing mother ships;
- (b) crab canning ships; and
- (c) refrigerated factory ships.

By developing the fleet in this fashion and by equipping vessels with production lines for the production of fish fillets, canned fish, herring in jars, vitamin products, oil and fishmeal, it is intended that the high seas catch will reach the ports as finished products which can be shipped immediately to the various regions of consumption.

The Soviet high seas fleet at the present time can be broken down as follows:

Table 7

Soviet high seas fleet

Fish factory mother ships (includes fishmeal factory ships)	85
Shellfish canned ships	14
Whale oil/fish factories	4
Tuna factory ships	5
Herring factory ships	2
Tuna seiners	9
Stern trawler factory ships	921
Fish carriers	253

It is estimated that at the present time the freezing capacity of the Soviet high seas fleet is in the region of 35 000-40 000 t per day. The rapid growth in the size and capacity of the high seas fleet is demonstrated by comparing the present daily freezing capacity with that which was available in earlier years. In 1960, it is estimated that the daily freezing capacity of the Soviet high seas fleet was in the region of 5 000 t. By 1965, this had increased to 14 000 t per day, whilst by 1968, the freezing capacity had increased to 24 000 t per day.

The Soviet fleet is capable of processing fish in a considerable number of ways including canning. The entire range of canned fish products includes almost 700 different products and the estimated output of canned fish is 2.5 billion standard cans. Approaching 50 percent of the total canned fish production is carried out onboard processing vessels at sea. The most common product is fish in tomato sauce which accounts for around 40 percent of canned fish production with fish in oil accounting for a further 20 percent.

One of the most widely used methods of fish processing within the Soviet Union and on board Soviet factory vessels is salting. Not only are finished salted products produced, but salting is utilized in the smoking, dry curing and other kinds of processing of fish. For a wide range of species and in particular herring, salting is one of the most expedient methods of preservation and is and will continue to be utilized on a large scale. In recent years, salted fish products have accounted for around 20 percent of the total fish food production of the Soviet Union and of the salted fish production, herring accounted for some 70 percent on average.

There is, therefore, a very close relationship between the catching and processing sectors of the Soviet fishing industry. In expanding their high seas operations, the Soviet Union pursued a policy of building fishing vessels which were also capable of processing the catches at sea. Thus at the present time an estimated 80 percent of the fish catch of the Soviet Union is processed at sea on board vessels.

The change in the international fisheries limits regime has affected not only the catching side of the industry, but also the processing side of the industry given the on-board location of the latter. Extended fisheries limits have, therefore, directly reduced the throughput of fish available to the processing sector, and the shift in fishing patterns to sustain catches has altered the variety of species available for processing as can be seen from the figures below.

Table 8

Reduction in species catches by Soviet vessels
(in tons)

	<u>1976</u>	<u>1981</u>
Atlantic mackerel	370 303	3 874
Jack & horse mackerel	381 141	185 271
Atlantic herring	155 693	111 538

Table 8 (Continued)

	<u>1976</u>	<u>1981</u>
Pacific herring	208 975	85 552
European sardines	517 380	185 850
Sprats	166 620	99 002
European anchovy	274 694	197 560
Atlantic redfishes	419 203	118 347
Atka mackerel	88 749	3 676
Capelin	895 153	727 886
Atlantic horse mackerel	188 803	183
Cape horse mackerel	410 261	362 393
Blue grenadier	41 735	3 325
Atlantic cod	467 534	176 752
Silver hake	134 988	40 336
North Pacific hake	158 047	311
Capes hake	296 645	33 943
Senegalese hake	59 542	2 830
Total	<u>5 235 466</u>	<u>2 338 628</u>

In the case of the above 18 species the reduction in the Soviet catch in 1981 compared with 1976, was almost 2.9 million tons. Obviously a reduction of this magnitude and in particular in the case of certain demersal species must have had a significant impact on the processing sector and on the ability of that sector to supply the demand for certain products.

But to a considerable extent the losses recorded in the catches of the above species was offset by increases in the catches of other species as can be seen below.

Table 9

Increases in species catches by Soviet vessels
(in tons)

	<u>1976</u>	<u>1981</u>
Japanese John Dory	1 571	25 167
Gunther's notothenia	0	36 758
Blue whiting	26 730	522 951
Alaska pollock	2 090 869	2 137 875
Pacific cod	22 420	40 997
Chilean horse mackerel	0	554 646
Cunene horse mackerel	0	92 439
Trigger fishes	0	96 285
Chub mackerel	375 507	415 290
Japanese pilchard	0	461 000
Sardinellas	215	111 204
Squids	17 300	39 565
Antarctic krill	500	420 434
Total	<u>2 535 170</u>	<u>4 954 611</u>

In the case of the above 13 species the catch by Soviet vessels in 1981 was just over 2.4 million tons higher than in 1976. So to a very considerable extent the Soviet Union has been able to make up reduction in catches which occurred as a result of extended jurisdiction. But the composition of the catches making up the shortfall is different to that taken in 1976 and earlier years. There has been a dramatic growth in the catches of Chilean horse mackerel and to a lesser extent in Cunene horse mackerel. The combined catch of these 2 species in 1981 was 647 085 t whereas in 1976 the Soviet Union reported that it did not catch any of these species. There has also been a slight increase in the catch of chub mackerel. But despite the very considerable growth in the catches of the

above species, they have not been sufficient to fully offset the 883 861 t reduction in the catches of Atlantic mackerel, jack and horse mackerel, Atka mackerel, Atlantic horse mackerel and cape horse mackerel.

Herring catches by Soviet vessels have also been considerably reduced with no corresponding catches in these species from other grounds. The same is largely true of European sardine, sprat and European anchovy, although to some extent the increased catches of sardinellas and Japanese pilchards provide a potential substitute. But it is in the case of Atlantic cod, redfishes and the various species of hake that the reduction in catches has posed the major problems, given the high demand for these products within the Soviet market. To compensate for the loss of these products the Soviet Union has increased the catch of Alaska pollock although the extent to which this can be continued is constrained by several factors. There has also been a very substantial increase in the Soviet catch of blue whiting since 1976, although there are considerable processing problems involved in handling this species. Nevertheless there has been a marked shift in the useage of this species away from reduction purposes to human consumption purposes. And, of course, there has been the very rapid increase in the catches of Antarctic krill.

But it does appear to be the case that the extension of coastal State jurisdiction over fisheries has not only reduced the overall Soviet catch, but altered the composition of the catch to such an extent that it would appear as though the demand for certain fish products is not being met at the present time.

This would appear to be confirmed by the latest guidelines set out in relation to fish. In May 1982, the Central Committee of the Soviet Communist Party approved the "Consumer Supply Programme in the Soviet Union for the period until 1990." This lays down the guidelines for economic development within the Soviet Union and was endorsed as recently as November 1982. Included in the programme are the following:

- The output of fish and fish products is to be increased. It is planned that by 1985 the output of edible fish will be increased to 4.2 million tons. By 1990, output will be further increased to between 4.3 and 4.5 million tons. The output of canned fish is to be increased to 3.0 billion standard cans by 1985 and to 3.2 billion standard cans by 1990.

To achieve the above no less than 75 percent of the Soviet catch will have to be utilized for food production which is higher than that achieved in the past (71.4 percent in 1980).

During the duration of the programme, the output of filleted fish is to be increased by 24 percent; the output of frozen fish by 40 percent; specially prepared cooked products by 21 percent; and smoked, dried and cured fillets by 16 percent;

- Port facilities and the services necessary for the better handling of fishing vessels are to be provided;
- The quality and variety of fish products supplied to the consumers is to be improved;
- Refrigeration capacity of 220 000 to 240 000 t is to be constructed by 1990;
- Fish breeding and restocking is to be improved and increased to provide an increase in yield.

Also contained within the programme are the planned increases in fish consumption *per caput* over the period ending 1990. This is shown below with comparable figures for earlier years.

Table 10

Annual *per caput* consumption in the Soviet Union

(kg)

1950	7.0
1960	9.9
1965	12.6
1970	15.4
1975	16.8
1980	17.6
1982	18.2
1990	19.0

On the basis of a population of 265.7 million in 1980, the apparent consumption in that year would be in the region of 4.68 million tons. The recorded catch in that year was 9 476 million tons and after provision is made for imports of fish and exports of fish, the total supply available was in the region of 9 117 million tons. On that basis the figure for apparent consumption would represent 51 percent of the total available supplies of fish. But it should be noted that the apparent consumption figure based on a *per caput* consumption figure of 17.6 kg and the reported 1980 population gives a figure in excess of the planned production of 4.2 million tons for 1985, and the 4.3-4.5 million tons planned for 1980.

If the population of the Soviet Union continued to grow at its present rate, then the population by 1990 would be in the region of 286 million. A *per caput* consumption figure of 19 kg would result in an apparent consumption of somewhere in the region of 5.4 million tons. If the planned *per caput* consumption figure is to be achieved then the Soviet Union must either substantially increase the catch by its own fleet either from the high seas or inland seas and fresh water sources, or it must significantly increase the level of fish imports entering the Soviet Union. Even to achieve the planned figure of 18.2 kg in 1982, which is the requirement that has been established by the Institute of Nutrition of the Academy of Sciences, then apparent consumption would be in the region of 4.9 million tons. This is again in excess of the planned levels of production and this would also suggest that the Soviet Union will require to import more fish in the coming years if the planned levels of consumption are to be achieved.

There has already been a substantial growth in the volume of fish imported by the Soviet Union. As was shown in Table 4, in 1977, the Soviet Union imported 50 469 t of fish and fish products. By 1981, this figure had increased to 181 811 t, an increase of 260 percent. In recent years, the Soviet Union has been a major importer of fish from certain European countries. Among the main suppliers of fish to the Soviet Union are the United Kingdom and Iceland. In 1980, the United Kingdom accounted for just over 20 percent or 40 000 t, mainly of mackerel. Iceland accounted for a further 40 percent, consisting of salted herring, fish fillets, canned fish and fishmeal. The Soviet Union's third major supplier has been Iran which accounted for just over 10 percent of the total imported supplies. Almost 75 percent of this was unprocessed black caviar. In 1982, the Soviet Union, imported 40 000 t of Atlantic mackerel from the United Kingdom in addition to 11 000 t of Atlantic herring. A further 12 000 t of salted herring were imported from Iceland, plus 17 000 t of demersal (mainly cod and saithe) fillets. In the case of the United Kingdom, the mackerel were imported in a round frozen form as was part of the herring with the remainder being salted. All the indications are, therefore, that there is a ready market for the traditional herring and mackerel species within the Soviet Union. In the case of herring, sizes in excess of 22 cm are requested.

Entering into trade with the Soviet Union is not, however, a simple matter. In accordance with the Constitution, the achievement of the functions arising from the State monopoly of foreign trade is entrusted to the All Union Ministry of Foreign Trade. It is the task of this Minister to achieve a positive trade balance; to accumulate reserves of foreign currency; and to improve the efficiency of foreign trade operations.

Given these criteria, the recent trade in fish with the Soviet Union has developed along particular lines. First of all, the necessity to conserve foreign exchange has meant that much of the trade with the Soviet Union is conducted on the basis of barter arrangements. Rather than being paid in money for the fish supplied the Soviet Union, the supplier is paid in the form of other products and usually fish. So a company supplying fish to the Soviet Union will normally receive fish in return. The fish supplied by the Soviet Union can then be sold in either the domestic or international markets and the money for the original supply can thus be recouped. The products offered in return by the Soviet Union will depend upon what is available at any particular time from their own fleet. In some cases the Soviet Union may be in a position to offer high value products such as shrimps in exchange for supplies of fish, whilst in other cases they may offer lower value species such as horse mackerel. Thus it is not uncommon for the Soviet Union to pay for its supplies of Atlantic mackerel by giving the supplier quantities of horse mackerel which it will agree to deliver to a West African port. Generally the pattern that has evolved is that the Soviet Union will supply those products for which there is a relatively limited domestic demand or those which can command a high and easily obtained price on the international market. Trade on this basis with the Soviet Union requires a considerable amount of information regarding the international market for fish. Such information is necessary to be able to convert what is being offered in return into actual money. A great deal of this barter trade is centred on West Africa. Given the requirements of this market for mackerel and horse mackerel in particular, many of the transactions in other parts of the world have to pay regard to what is happening in this market. Thus if the Nigerian Government alters the ceiling price that may be paid for imported fish, this can have repercussions on the prices being paid in other parts of the world, as they are interrelated via the medium of barter.

Control of trade in fish to the Soviet Union is vested in two bodies. One of these deals with trade on a monetary basis, although the volume of imports handled is very small and it concentrates on the export of high value products. The details of this body are shown below:

V/O Prodintorg,
Moscow 121200,
Smolenskaya - Sennaya Pl.32/34,
USSR

The body which deals with the barter arrangements involved with the importing of fish is SOVRYBFLOT. In addition to its function of coordinating the Soviet fleet's activities this body is responsible for the exchange, barter and compensatory arrangements by which the Soviet Union acquires supplies of imported fish. The details of this body are shown overleaf.

V/O Sovrybflot,
Moscow 103051,
Rozhdestvenski Boulevard 6
Telex 411208, 411210
Telephone 200 63 57

The other development in the Soviet Union's trading activities has been the growth of joint venture companies. The impetus to the development of such companies was, of course, the extension of national jurisdiction over fisheries limits. Departing from their previous stance of self-sufficiency, the Soviet Union has since 1977, not only entered into a considerable number of international fishery agreements, they have also established a number of commercial fishing ventures in which they are parties along with a company from the country in which the venture was established. Thus in 1978, the Soviet Union's established a joint venture company with US partners, thereby continuing to have access to supplies of ground fish caught by American fishing vessels in the North East Pacific. By adopting this approach the Soviet Union has been able to secure fish and fish products for the domestic Soviet market, they have been able to earn foreign exchange for fish exported to third countries and they have secured the employment of a number of their processing factory vessels in waters in which they are now prohibited to fish. So by adopting the joint venture approach in certain areas, the Soviet Union has been able to continue getting supplies of fish from waters formerly fished by themselves, but in which they can no longer fish. Under the arrangement the fishermen of the country with jurisdiction over the area catches the fish and delivers directly to the Soviet processing vessel, the so-called over-the-side sales. These fishermen are then paid by the joint venture company. In the past

few years the Soviet Union has utilized the joint venture approach to secure supplies of fish from the North East Pacific and Alaska - mainly Alaska pollock, Pacific cod and Pacific hake with smaller quantities of yellow fin sole; from the east coast of Canada - mainly herring and mackerel; from the west coast of the United Kingdom - mainly herring and mackerel from British vessels, but also recently from Norwegian vessels which are permitted to fish in these waters also for herring and mackerel; and from the west coast of Ireland - again herring and mackerel. In virtually all of these cases the Soviet Union is purchasing supplies of fish which prior to the extension of fisheries limits used to be caught by Soviet vessels. One such area is Canada which has proved to be an important source of fish for the Soviet Union via over-the-side sales, utilizing Soviet factory vessels. Canadian landings in the over-the-side sales programme in 1982 were 28 400 t compared with 12 000 t in 1981. Although the 1983 programme has as yet to be finalized a provisional figure of 15 500 t of Bay of Fundy herring has been allocated. The Soviet Union share of this trade has been significant. In 1980, the Soviet Union reported only 48 t of frozen herring from Canada. In 1982, the Soviet Union purchased 20 325 t of fresh herring from Canada plus a further 7 865 t of frozen herring.

The policy of Sovrybflot in regard to joint ventures appears to be to establish such a venture in each area of operation and in which Sovrybflot holds half the equity. At the present time the joint venture companies which are most active in securing supplies of fish for the Soviet Union are as shown below:

1. Marine Resources,
192 Nickerson,
Suite 307,
98 10 09
Seattle,
USA

Telex No. 277115
Main Area of Operation:
North East Pacific and Alaska.
2. Sovhispan S.A.
Tchaikovskogo 7/1,
Moscow,
USSR

Telephone No. 205 20 08/10/19
Telex No. 413291 SOVMW SV
7891 SOVMW SV
3. Sovhispan S.A.
Tinglado Muelle Ribera, S/N,
Las Palmas de Gran Canaria,
España

Telephone No. (28) 27 43 58
Telex No. (52) 95306
4. Sovhispan, S.A.
Joaquin Costa 16,
Madrid 6,
España

Telephone No. 411 05 12
Telex No. (52) 44398

Main area of operation: West Africa, Spain, United Kingdom and Ireland.

Sovhispan also has offices in Tenerife, Madrid, Togo, Colombia, Gabon, Nigeria and Benin.

5. Scarus,
Scarus Marine Nutrition A.B.
Kungsgatan 18,
S 252 21 Helsingborg,
Sweden

Telephone No. 42 18 01 90
Telex 72403 Scarus S.

Main area of operation: Scandanavia, United Kingdom, Ireland and Canada.

Poland

The development of the Polish fishing industry has been very rapid in the era since 1950. Prior to 1939, Poland's own fishing vessels could produce only a small proportion of the country's requirements of fish and fish products. To supply these needs large quantities of salted herring had to be imported, mainly from the United Kingdom, the Netherlands and Norway.

In 1950, some 46 percent of Poland's fish catch was being taken by privately-owned fishing vessels. A further 12 percent was caught by vessels run on a cooperative basis, and 42 percent by state-owned vessels. By 1960, the share of catch accounted for by state-owned vessels had increased to almost 77 percent, with 12 percent being caught by vessels run on a cooperative basis and only 11 percent by privately-owned fishing vessels.

This change in the composition of fleet ownership has been accompanied by a very rapid growth in the landings of fish by Polish fishing vessels. In 1948, the Polish catch of fish amounted to 48 000 t. By 1955, this had increased to 126 000 t and by 1970 to 473 000 t. In just over 20 years Poland has become one of Europe's main fishing nations. Nominal catches by Polish vessels in all fishing areas are shown below:

Table 11

Nominal catch by Poland: all fishing areas
(in tons)

1972	544 000
1973	579 600
1974	678 954
1975	800 737
1976	752 072
1977	654 828
1978	571 397
1979	601 153
1980	640 013
1981	629 610

Source: FAO Year Book of Fisheries Statistics 1981 - Volume 52

Fish catches by Poland reached a peak of just over 800 000 t in 1975. In the following year 1976, the catch was down to 752 000 t, but in 1977, the year following the extension of national jurisdiction over fisheries limits the Polish catch fell by almost 100 000 t to just under 655 000 t. There was a further fall in 1978, but since then the realignment of Polish fishing effort has established the catch at around 630 000 t. The impact of limits extension can be demonstrated by the changed geographical distribution of the Polish high seas catch before and after 1976. This is shown below.

It can be seen that Poland has suffered a considerable reduction in catches from traditional fishing grounds as a result of limit extension. The catch in the North Western area of the Atlantic has fallen very considerably as has the catch from the Eastern Atlantic area. Some reduction has also taken place in the North East Atlantic, but to offset these the Polish catch has increased very considerably in the Antarctic, the South Western Atlantic, the North East Pacific and to a lesser extent in the South Eastern Atlantic.

Table 12

High seas catches by Polish vessels by area
(in tons)

	1976	1981
Atlantic: North West	125 488	9 575
Atlantic: North East	324 830	214 929
Atlantic: Eastern	129 412	1 632
Atlantic: South West	579	73 263
Atlantic: South East	113 026	125 382
Atlantic: Antarctic	-	17 656
Pacific : North East	30 714	159 942

At the same time as the pattern of Polish fishing effort has been realigned geographically, there has also been a substantial change in the composition of the species mix. The main changes that have occurred are shown below:

Table 13

Changes in Polish fish catch by species
(in tons)

	1976	1981
Saithe	40 149	698
Atlantic herring	84 953	64 005
Atlantic mackerel	74 976	3 980
Sprat	66 551	11 205
Cape hake	58 267	4 383
Cape horse mackerel	43 551	118 840
North Pacific hake	26 422	64 179
Atlantic cod	101 370	121 815
Southern blue whiting	-	48 419
Alaska Pollock	21	92 889
Squids	58	19 211

It can be seen that the reduction in the level of Polish fishing effort in the northern and eastern areas of the Atlantic has reduced the Polish catch of traditional species. The current Polish catches of saithe, Atlantic herring, Atlantic mackerel and sprat are all considerably lower than they were in the days of open access to all fishing grounds. Surprisingly the Polish catch of Atlantic cod are currently at a higher level than they were in 1976. But this has to be seen against a background in which the Polish cod catch from Atlantic waters slumped to 58 410 t in 1977 as the first impact of extended limits was felt. Since then the catch has recorded to 85 489 t in 1979, 124 537 t in 1980, before falling slightly to the 121 815 t achieved in 1981. The Polish catch of cape hake, has also fallen very considerably since 1976.

Faced with exclusion from certain fishing grounds and by a substantial reduction in the catches of those species traditionally caught and consumed, the Polish fleet has attempted to redress the imbalance by increasing the catches of other species. Thus the catch of Southern Blue whiting has increased from zero in 1976 to 48 419 t in 1981; the catch of Alaska pollock has increased even faster - from only 21 t in 1976 to 92 889 t in 1981; Cape horse mackerel has increased from 43 551 t in 1976 to 118 840 t in 1981; North Pacific hake from 26 422 t in 1976 to 64 179 t in 1981; and squids from only 58 t in 1976 to 19 211 t in 1981.

In many respects the Polish high seas fishing fleet is similar to the Soviet fishing fleet, although very much smaller. But in both cases virtually all of the fishing vessels are capable of processing or part processing the catch onboard the vessel. At the present time the Polish high seas fleet has around 100 factory stern trawlers capable of freezing or processing the catch onboard. The estimated daily freezing capacity of the Polish high seas fleet is in the region of 3 000 t per day. So in attempting to process as much as

possible of the catch at sea the development of the Polish fleet has been along the same lines as the development of the Soviet fleet, although there has been a greater proportion of the Polish catch used to produce fillets.

Fish constitutes an important input in the average Polish diet, although not so important as in, for example, the Soviet Union. But the Polish Government has recently intimated its intention to improve the Polish diet. The Polish Council for Food Economy recently called for changes in the national diet with increased emphasis on high protein foods and less carbohydrates. The aim is to improve the diet in two stages. In the first stage the total supplied energy is to be increased from the present level of 2 812 calories per day to 3 450 calories per day. In the second stage it is planned to achieve a level of 3 480 calories per day. The total intake of proteins is planned to rise by 17 g per day of which 8 g will be animal proteins. This will be achieved by increased consumption of meat, milk and fish. At the present time the *per caput* consumption of fish is 7.3 kg and it is planned to increase this to 8 kg per head in the first stage and 10 kg per head in the second stage.

On the basis of the present per consumption figure of 7.3 kg per head, the apparent Polish consumption would be in the region of 262 000 t of fish and fish products. Given a Polish fish catch in the region of 630 000 t and adjusting the total supply figure to take account of imports and exports, Poland would have had a total fish supply of somewhere in the region of 785 000 t in 1980. So the apparent consumption figure would represent around 33 percent of the total available supplies and this to a large extent reflects the high proportion of fillets, dried and smoked fish entering Polish consumption.

If it is assumed that by 1990 the Polish population will have grown to 40 million, then on the basis of the planned increase in *per caput* consumption to 10 kg, apparent consumption will be in the region of 400 000 t of fish and fish products per year. This can be achieved only by a very significant increase in the Polish high seas catch which appears unlikely given the fisheries limit regime or by an increase in the imports of fish and fish products.

One of Poland's responses to extended national jurisdiction has already been a significant increase in imports. In 1977, Poland imported just under 170 000 t of fish and fish products, but by 1980, this had increased to about 236 000 t.

Polish imports of fish reflect very closely the domestic pattern of production. As has already been stated Polish production practices are geared toward the production of fillets and in 1980, the Polish fleet produced more than 41 000 t of frozen fillets, derived mainly from herring and mackerel, but also cod, pollock and blue whiting. Of Poland's imports in 1980, some 55 000 t were imported in a frozen fillet or whole form and these were largely accounted for by herring, mackerel and pollock.

A good deal of dried, salted or smoked fish is also consumed in Poland. In 1980, some 58 326 t of such products were produced by the Polish fleet. Of this total some 20 000 t was in the form of smoked fish, herring and mackerel, a further 17 000 t was in the form of salted herring and quantities of smoked sardines and sprats were also produced.

There is also a considerable production of canned fish and fish products in jars. In 1980, almost 96 000 t of such products were produced and included almost 40 000 t of canned fish such as pilchards, hake, mackerel and pollock. In addition 14 000 t of herring preparations were produced plus 5 000 t of canned herring in oil and a further 35 000 t of fish preparations were produced.

Again this is reflected in the pattern of imports with, for example, the Soviet Union supplying Poland with over 22 million standard cans of fish in 1980.

Despite the fact that there has been and will increasingly be a need for Poland to import part of the population's fish requirements, trade with Poland is complicated by one major factor. That factor is the country's shortage of foreign currency with which to pay for its purchases. Thus Poland has sought to acquire supplies of fish, via a barter arrangement, and over-the-side sales. In some areas, joint venture operations have been the only way of getting access to fishery resources. This has been true in the waters off the United States of America, Canada, the United Kingdom and Ireland. In all of these areas,

Polish fishing vessels have been utilized as floating factories to process the catches taken by domestic fishermen. In this way Poland has acquired supplies of mackerel and herring from the waters around the United Kingdom and Ireland and Alaska pollock from the North East Pacific and Alaska waters. In some of these areas some of the production was utilized to pay for the cost of the operation and so, for example, some frozen groundfish blocks have been sold in the United States of America to finance Polish operations in the waters of that country. In other cases, the catches of species surplus to Polish requirements are exchanged on a barter basis for those species for which there is a known demand within Poland. Supplies of herring from the waters of the United Kingdom may, therefore, be acquired for deliveries of cape horse mackerel in another part of the world.

Given the nature of the organization of the Polish economy, all such transactions are governed by one State body, the details of which are given below:

Polish Foreign Trade Company,
Rybex,
70 965 Szczecin,
Odrowaza Street,
Poland

Telex number 0422 326 B RX PL
Telephone number 22 - 17 - 77

German Democratic Republic

Prior to 1949, the only fisheries on the territory now comprising the German Democratic Republic were relatively insignificant coastal fisheries with an annual catch of around 12 000 t. In 1949, 17 m cutters were commissioned as nationally-owned property. From 1949 to 1959, a total of 154 17 m cutters, 35 drifters, 11 21 m still cutters, 56 24 m cutters, 50 26.5 m cutters and 20 large side trawlers were taken into service. By 1959, fish landings by the nationally-owned fishing fleets based at Sassnitz and Rostock amounted to 78 620 t.

The next stage in the development of the fishing industry involved the commissioning of larger stern trawlers and the start of fishing operations at more distant fishing grounds in the North Atlantic. By 1969, the fleet caught around 270 000 t of fish and the introduction of the factory trawlers meant that processing of the catch could be carried out on board and not inshore based facilities. The nominal catch of fish taken by the German Democratic Republic in recent years is shown below:

Table 14

Nominal catch by GDR: all fishing areas
(in tons)

1972	321 400
1973	351 500
1974	349 840
1975	361 405
1976	266 115
1977	195 423
1978	183 361
1979	209 362
1980	223 132
1981	228 988

Source: FAO Yearbook of Statistics 1981 - Volume 52

Again it can be seen that the extension of fisheries limits has had a significant impact on the annual catch. After falling to a low of 183 361 in 1978, however, the redevelopment of the fleet has led to some increase in the catch which in 1981 amounted to 228 988 t. In this process of redeploying fishing effort, the catches from the waters of the North West and North East Atlantic fell dramatically. To offset this, however, there was a very substantial increase in the catch from the waters of the Eastern Central Atlantic

and in 1981, almost 104 000 t or 45 percent of the GDR catch came from these waters, compared with only 7 461 t in 1976.

Such a radical change in the deployment of the fleet has led to a considerable change in the composition of the catch taken. This is shown below:

Table 15

Changes in GDR fish catches by species
(in tons)

	1976	1981
Atlantic cod	29 394	13 841
Atlantic redfishes	25 109	5 916
Atlantic mackerel	42 918	51
Atlantic herring	69 907	56 643
Sprats	14 015	78
Pilchards	9 755	-
Saithe	14 104	-
North Pacific hake	26 905	-
Greenland halibut	10 627	2 708
Blue whiting	5 061	22 169
Jack & horse mackerel	1 076	95 889

There has, therefore, been a very substantial reduction in the catch of the traditional species for which there was a well established market in the GDR. Apart from cod and redfishes, this is particularly the case of herring, Atlantic mackerel, sprats, pilchards and saithe.

The immediate consequence of extended fisheries jurisdiction was a substantial increase in the imports of fish and fish products into the GDR. In 1977, imports rose to just over 140 000 t, but by 1980 it is estimated that imports fell to just under 80 000 t. There are a number of possible explanations for this trend which appears to be at variance with that recorded in other East European countries. The most plausible explanation is that the GDR has been able to make up for lost fishing opportunities by means of over-the-side sales which are conducted on a monetary basis as opposed to the barter approach of other countries.

In the past 4 years, the GDR has purchased considerable quantities of herring and mackerel in the waters of the United Kingdom and Ireland. In 1982, for, example, the GDR purchased almost 24 000 t of mackerel from the United Kingdom. In addition, the GDR purchased quantities of herring in Canadian waters from Canadian fishermen under the over-the-side sales programme. In exchange for purchasing herring from Canadian fishermen, the GDR were themselves permitted to fish within the Canadian fisheries zone. In 1982, the GDR purchased \$Can 1.7 million worth of round salted herring from Canadian packers.

To secure supplies of groundfish, the GDR has also been attempting to secure access to Northeast Pacific and Alaskan waters.

The GDR also imports fish and fish products from the Soviet Union. In 1980, some 10 000 t of fish were imported from the Soviet Union in addition to almost 3 million standard cans of fish.

In 1977, the management of the fisheries sector of the GDR was reorganized. Fish processing works belonging to domestic marketing organizations were placed under the management of the VEB Fischbounblunat Rostock. The different fish processing enterprises within this group produce different products. One of the largest of these enterprises is VEB Fischwerk Sassnitz which produces smoked fish, canned fish, fine marinades, cold marinades, fried fish and fish preserves. Almost 200 products are produced and more than two thirds of the canned fish products made in the GDR came from Sassnitz. The other processing units in the GDR are:

VEB Fischverarbeitung Basth
VEB Fischverarbeitung Schwaan
VEB Fischindustrie Magdeburg
VEB Fischwarenfabrikation Planen
VEB Delicat Pirna
VEB Fischmarinaden Leipzig

These enterprises produce a wide variety of fish goods including smoked products, canned goods and preserves based upon herring, sprats, sardines, mackerel and related fish.

In the German Democratic Republic, the foreign trade enterprise Fischimpex is responsible for the exporting and importing of fish and fish products as well as for the conclusion of contracts and the close cooperation with the enterprises concerned. The details of this body are given below:

Fischimpex Rostock
Nationally-Owned Foreign Trade
Enterprise of the GDR
DDR 2510 Rostock 5
Postfach 42
German Democratic Republic

Telex number 31 309
Telephone number 81 03 70

Romania

Romania is another of the East European countries that has in the past 3 decades developed its fishing industry on a centrally planned basis. And although the extension of fisheries limits has had the same effect on the geographical distribution of the Romanian fleet as the other East European fleets, Romania has in fact been able to increase the fish catch compared with the open access period. The recent trend in Romanian catches is shown below:

Table 16

Nominal catch by Romania: all fishing areas
(in tons)

1972	84 400
1973	102 200
1974	129 459
1975	136 624
1976	127 197
1977	150 701
1978	137 676
1979	179 087
1980	173 598
1981	192 013

Source: FAO Yearbook of Fisheries Statistics 1981 - Volume 52

Despite the extension of fisheries limits, therefore, the Romanian fish catch has continued to grow and this has again been achieved by exploiting new areas of the world's high seas fishing grounds. This is particularly true in the case of the waters of the Eastern Central Atlantic which now account for 45 percent of the entire Romanian fish production or 63 percent of the marine catch.

Romania differs from many other fishing nations in that a relatively high proportion of the fish production is in the form of fresh water fish. In 1981, for example, fresh water fish accounted for almost 55 000 t of Romanian fish production or 28 percent of the total.

As to the actual Romanian marine fish catch this is heavily biased toward horse mackerel. In fact between them cape horse mackerel and jack and horse mackerel accounted for 98 274 t in 1981 or 72 percent of the Romanian marine fish catch. Another species whose production has increased is sardinella with nearly 9 000 t in 1981, compared with none in 1979. But as with other countries, the Romanian catch of Atlantic mackerel and European sardines which were preferred by the consumer have fallen away to virtually zero.

The Romanian fleet of 41 factory stern trawlers has also developed along the lines of processing the catch at sea. These vessels have also been utilized to acquire supplies via over-the-side sales and Romanian vessels have purchased Atlantic mackerel in this way in the waters of the United Kingdom for the past 4 years.

Romania also imports fish and fish products from the Soviet Union and in recent years has been importing around 6 000 t of fish in addition to 2 million standard cans of fish from that country.

In order to coordinate its worldwide fishing and trading operations, Romania, has also established a joint venture company. The details of this company which is based in London are shown below:

Atalanta (UK) Limited
Imperial House
Dominion Street
London EC2
United Kingdom

Telephone Number: 01 606 7231
Telex Number: 884947

Bulgaria

Another East European State to develop a deep sea fishing fleet has been Bulgaria. Before 1945, Bulgaria relied entirely upon the Black Sea and inland rivers and lakes for its fish supplies. In the mid 1960s, however, the Soviet Union agreed to supply Bulgaria with 20 ocean going stern factory trawlers and 4 fish carriers. This fleet has now grown to 30 factory trawlers and 6 fish carriers. In 1969, the Bulgarian catch stood at 82 800 t compared with only 6 800 t in 1948. Catches in recent years are shown below:

Table 17

Nominal catches by Bulgaria: all fishing areas
(in tons)

1972	111 000
1973	102 000
1974	118 675
1975	158 113
1976	167 097
1977	137 955
1978	101 116
1979	89 515
1980	126 412
1981	106 673

Source: FAO Yearbook of Fishery Statistics 1981 - Volume 52

The pattern that emerges is again one of redeployment following the extension of limits in 1976. Supplies of the traditional and favoured species such as Atlantic mackerel, European sardines, North Pacific hake and cape hake have fallen away. These have been compensated for by increased catches of blue whiting, Chilean jack mackerel, cape horse mackerel and sprat. Freshwater fish are also important in Bulgaria and enhanced techniques has boosted the freshwater catch to around 12 percent of the total fish production.

In common with other East European countries, Bulgaria has attempted to secure supplies in waters which Bulgarian vessels used to operate by developing the joint venture approach and engaging in over-the-side sales. In this way supplies of Atlantic mackerel have been obtained in the waters of the United Kingdom and Ireland. Supplies of Pacific hake have also been obtained in the North East Pacific. Some small quantities of fish are imported annually from the Soviet Union. Control of fish trade to and from Bulgaria is again vested in one organization whose details are given below:

Dso Ribno Stopanstvo
3 Industrialna Street
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4. MARKET POTENTIALS

USSR

The actual marketing of fish within a market as large and as diversified as the Soviet Union is extremely complicated. The first difficulty that has to be overcome is the physical size of the market and in particular the fact that the main fishing ports are located in regions well away from the main centres of consumption. The main consumer centres for fish are Moscow, Leningrad, Kiev, Kharkov, Sverdlovsk, Volgograd, Kalinin and the other major centres of industry. These cities are a very considerable distance away from the main landing ports of Murmansk and Riga where the northern and Baltic fleets are based and even further away from Vladivostok the main centre for the Pacific fleet. The vast distances involved before fish can be delivered to the consumer has had a very important impact in determining the demand for the particular types of species of fish desired by the consumer.

Insofar as the particular species are concerned, there is a strong demand for the principal demersal species such as cod, Alaska pollock and hake. Although fresh fish would attract a very strong demand the time lags involved in distributing the catches to the main centres of consumption are such that most of the catch reaches the consumer in a processed form. The most common form of processing remains salting and, therefore, those species which are best suited to salting attract a strong demand. This is particularly true of some of the pelagic species such as herring and mackerel. The next most common form of processing is smoking and again there is a strong demand for those products suitable for smoking. Again the main whitefish species mentioned and the pelagic species above and including horse mackerel come into this category. And, of course, canned fish constitute a very important part of the fish supplies available to the consumer and the pelagic species such as herring, mackerel, pilchards, sprats and sardines are utilized for this purpose. In 1981, production of canned fish amounted to 2.9 billion standard cans and the bulk of this was accounted for by these pelagic species.

Largely as a result of extended national jurisdiction, the Soviet Union has suffered a reduction in the catches of some of the species for which there was and indeed is a strong demand. This is true in the case of cod, hake, herring, mackerel, sardines, anchovies and sprats. But it has to be recognized that the international demand of fish is such that some of these species attract strong demand from other countries. This being so, the Soviet Union is not prepared to pay the prevailing international price for cod. But certain other species and notably the pelagic species are surplus to the domestic requirements of some of the catching countries. This is true in the case of herring, mackerel, sprats, sardines and anchovies, insofar as certain countries in Northern Europe, such as the United Kingdom, Ireland, Norway and Finland, are concerned, and also in the case of Canada.

There does exist at the present time a substantial market within the Soviet Union for pelagic species such as those mentioned above and in particular herring and mackerel which are particularly favoured by the consumer. Future developments within the Soviet Union such as the planned expansion of the frozen food industry which in 1985 should be supplying consumers with 540 000 t of frozen product will stimulate the demand for species such as blue whiting which require to be frozen within a short time of being caught.

Consumer preference and financial constraints make it likely that the demand for imported fish will continue to be centred on the pelagic species. The actual level of demand will vary from year to year depending on a number of factors. These include the actual performance of the Soviet fleet in terms of catches and production and the international markets for the barter products. At the present time, however, there would appear to be a potential for a considerable growth in the level of imports entering the Soviet Union and the present level of demand is such as to suggest that up to 400 000 t of mainly pelagic fish could be marketed within the Soviet Union in addition to the domestic catch.

Poland

The demand for fish within Poland has traditionally been confined to a relatively small number of species. The species for which there has traditionally been the greatest demand are cod and herring. Due to foreign exchange shortages and strong international demand Poland has not been able to import supplies of cod. And as in the 1970s overfishing reduced supplies of herring, there was a switch in consumption to mackerel. But supplies of Baltic herring remained available and the species for which there exist import possibilities remain herring and mackerel and to a lesser extent pollock.

Such species are utilized in the production of smoked, dried and salted products, and if the Polish catch remains at around its present level the possibility of increasing Polish fish imports to around 300 000 t exists. Again this will depend crucially upon Poland's ability to release barter products on to the international markets as foreign exchange shortages present trade being conducted on a monetary basis.

German Democratic Republic

In common with various other Baltic countries the types of fish preferred in the GDR are cod and herring, although there is also a strong demand for saithe. Shortages of herring forced the GDR to seek alternative supplies of fish for their processing factories which were engaged in smoking and canning fish. The species which filled the gap left by the reduction in herring supplies was mackerel and there now exists a strong demand for imported supplies of herring and mackerel within the GDR.

There is also a demand for the smaller pelagic species such as sprat and sardines especially from the canning factories.

The future demand for imported fish within the GDR depends on the level of catches taken by their fleet in their own fishing operations. But notwithstanding the performance of the fleet, there appears to be a market for perhaps 150 000 t of imported fish within the GDR with the demand being primarily directed toward the pelagic species mentioned above.

Romania

Freshwater species are without doubt those most sought after by the consumer in Romania. Insofar as marine fish is concerned the species most sought after is mackerel. In the days of free access to the world's fisheries, Atlantic mackerel was the species most sought after by the Romanian fleet. But these fisheries nearly all come within the jurisdiction of some coastal State or another now and fishing effort has shifted to the catching of horse mackerel.

There remains, however, a market for the other varieties of mackerel although this is probably no larger than 30 000 t.

Bulgaria

With the exception of the freshwater species, perhaps the species most favoured by the Bulgarian consumer is mackerel. To date virtually all of Bulgaria's fish imports have been accounted for by Atlantic mackerel and it seems unlikely that the market for species other than mackerel of one variety or another is sufficiently strong to encourage the development of trade.

It would appear, therefore, that the Bulgarian market will remain a mackerel-oriented one and the level of demand is such that a market for up to 40 000 t could exist.

No: 11228

